

Please replace the specification with the following substitute specification:

LIFTING AND TELESCOPING DOLLY

FIELD OF THE INVENTION

[0001] The present invention relates to the field of devices used for transporting objects, more specifically to the field of hand-operated, wheeled devices. Such devices are commonly referred to as hand trucks, carts, or dollies for which the prior art is rich with various conceptions.

BACKGROUND OF THE INVENTION

[0002] Rountree (the 6,561,745 patent) claims a two-wheeled dolly, complete with brakes, for transporting a floor sander. McCarthy (5,839,876) claims a dolly capable of lifting and rotating objects in a confined space such as an elevator. Dach (5,358,217) claims a four-wheeled dolly that utilizes a hydraulic jack for lifting lawn and garden tractors. Schrader (5,114,118) claims another four-wheeled dolly with which a load can be lifted a short distance off of a floor and rolled to a remote location. Alexander (3,913,762) claims a two-wheeled dolly equipped with brakes and a winch.

[0003] McGill (6,406,248) claims a dolly for lifting, moving, and tilting a cylindrical object, specifically disclosing an embodiment the primary function of which is to hoist a hot water heater into or out of an attic. The McGill dolly provides only a vertical hoist; it must be positioned directly underneath an attic opening.

[0004] Also, hoisting an object from a floor into an attic with the McGill dolly requires that a rigid member accessory such as a steel tube or beam as long or longer than the customary height of a standard residential water heater be securely fitted into the top of the McGill dolly that is itself approximately as tall as a water heater. McGill at column 5, line 12. The accessory tube or beam must reach into the attic far enough to

enable a worker to unload the hoisted object from the dolly onto the attic floor. Then a “winch or hoist means” must be removed from the top of the McGill dolly and secured to the top of the accessory tube or beam while the lifting cable or band attached to the winch or hoist means remains attached to the platform on which the hoisted object rests while it is being hoisted. McGill at column 3, line 32 and column 5, line 25.

[0005] The disclosed operation of the McGill dolly requires that (1) an operator must carefully vertically balance a tall tube or beam, complete with a winch of not insignificant weight fixed to its top, while attempting to insert the bottom end of the tube or beam into the top of a mating member that is part of the dolly resting on the floor below an attic opening, or (2) the McGill dolly requires two operators, one at floor level to attach or insert the accessory tube or beam, and another in the attic to attach the winch or hoist means to the top of the accessory. A single operator could conceivably attach or insert the accessory and then carry the winch or hoist means into the attic through the same access directly above the McGill dolly, providing that the winch cable attached to the platform on which the hoisted object rests does not foul during the transfer of the winch from its floor position to its attic position.

[0006] Because the McGill dolly has no lateral support members, its hoisting capability is vertical only. It could not be used to hoist objects into an attic equipped with a pull-down staircase. Furthermore, McGill’s failure to claim or disclose any support of the accessory tube or beam when it is inside the attic creates a situation of precarious instability when a heavy load is hoisted.

SUMMARY OF THE INVENTION

[0007] The present invention eliminates the problems of the current and prior art dollies. The present invention features a support member that makes it possible to hoist an object at various angles other than vertical, thus enabling the hoisting of an object into an attic having a pull-down staircase. The present invention enables one-person operation. It also provides an integral top support member that attaches to a fixed part of the attic construction, such as a rafter or beam, thus stabilizing the dolly during the

operation of hoisting an object from a floor or ground surface into an attic above the floor or ground surface.

[0008] The present invention provides an improved dolly that facilitates transport of objects across horizontal and inclined surfaces and enables the hoisting of objects from a floor or ground surface into an attic above the floor or ground surface.

[0009] The present invention provides a dolly the height of which can be telescoped from approximately that of dollies commonly used for moving furniture, household goods, appliances, and commercial stock to a height sufficient for hoisting objects from a floor or ground surface into an attic above the floor or ground surface.

[00010] The present invention provides a dolly with a foldable support member that permits hoisting of objects at angles inclined from the vertical.

[00011] The present invention provides a telescoping dolly that incorporates a means of attaching the topmost section of the dolly to a structural member near an attic access in order to safely stabilize the dolly during the operation of hoisting an object from a floor or ground surface into an attic above the floor or ground surface.

[00012] The present invention provides a dolly that enables an operator, acting alone, to safely hoist an object into an attic, remove the object from the dolly, and place the object on the attic floor.

[00013] The present invention provides a dolly with a lockable, foldable support member that permits hoisting of objects at angles inclined from the vertical.

[00014] The present invention provides a dolly with a braking system for further provision of safe transport and hoisting of objects.

[00015] The present invention provides a dolly the telescoping and foldable components of which collapse into a compact profile that can be conveniently transported and stored.

[00016] The present invention provides a dolly of simple and lightweight, yet durable, construction that can be inexpensively manufactured.

BRIEF DESCRIPTION OF THE DRAWINGS

[00017] Fig. 1 is a front isometric drawing of the dolly of the present invention loaded with a phantom load.

[00018] Fig. 2 is a rear isometric drawing of the dolly of the present invention loaded with a phantom load.

[00019] Fig. 3 is a rear orthogonal drawing of the dolly of the present invention with the rear support member folded inward and flat against the rear face of the main member, and the phantom load resting on the base member that is flat on the floor or ground surface.

[00020] Fig. 4 is a front orthogonal drawing of the dolly of the present invention with the rear support member folded inward and flat against the rear face of the main member, and the phantom load resting on the base member that is flat on the floor or ground surface.

[00021] Fig. 5 is a front isometric drawing of the dolly of the present invention telescoped to full extension and loaded with a phantom load hoisted to its maximum height.

[00022] Fig. 6 is a rear isometric drawing of the dolly of the present invention telescoped to full extension and loaded with a phantom load hoisted to its maximum height.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[00023] Fig. 1 illustrates a preferred embodiment of the lifting and telescoping dolly 100 of the present invention, the function of which is to transport and hoist a load

200 resting on base member 31 and held to the front face of main member 12 with releasable strap 39. Dolly 100 is moveable via an axle assembly and wheels 18 attached near the bottom edge of main member 12. When necessary, rolling transport of dolly 100 is checked by operator-activation of braking system 15 that with a commonly understood lever-actuated system of cables applies a compressive force to some area of axle and wheel assembly 18.

[00024] Support member 32 is pinned or otherwise attached to pivot brackets 45 attached to main member 12. Foldable support strut 34 is articulated so that it may be folded about a point near its center. One end of each of the two foldable support struts 34 is pinned, hinged, or otherwise rotatably attached to support member 32, and the other ends of support struts 34 are slidably attached to main member 12 so that support member 32 may be positioned at various angles with respect to main member 12, and locked in position with locking devices 33 such as pins, locknuts, or over-center clamps that when engaged maintain support member 32 in a position fixed relative to main member 12. Two support axle and wheel assemblies 36, located at the bottom edge of support member 32, in conjunction with axle and wheel assembly 18, facilitate rolling transport of dolly 100.

[00025] Two handles 38, attached to the rear face of main member 12, provide means for an operator to grasp and maneuver dolly 100 during transport. Handles 38 also provide support when support member 32 is folded parallel to main member 12 and dolly 100 is lowered and positioned such that it is essentially parallel to the floor or ground surface.

[00026] Fig. 1 shows that the illustrated embodiment includes a tube 41 near the top edge of main member 12. Each end of tube 41 receives a post 5 capable of sliding from a position recessed inside tube 41 to a position substantially exposed but still engaged with tube 41.

[00027] Fig. 2 shows winches 1 and 2, and their respective handles 10 and 20. Winch 2, attached slightly below the top edge of main member 12, is turned by an operator with handle 20. Turning of winch 2 causes cable 21 (see Figs. 1 and 3), attached

to the drum of winch 2 and led through a system of commonly understood pulleys and guides to the bottom of secondary member 7, to slide secondary member 7 (see Figs. 1 and 4) inside main member 12. Secondary member 7 is a rigid tubular frame, the long sides of which are captured by but can slide, and assisted by wheels or bearings, roll, in the long sides of main member 12, constructed of C-section beams.

[00028] An operator can load an object 200 onto base member 31, secure it to dolly 100 with adjustable attachment strap 39, and transport dolly 100 and its load to a position near an attic access. The operator can rotate support member 32 away from its transport and storage position that is substantially adjacent and parallel to main member 12. Such rotation extends foldable support struts 34, and the operator can engage locking devices 33 so as to orient main member 12 in a substantially A-frame configuration. The operator can activate and lock brake system 15 that forces brake pads against the dolly wheels and prevents further rolling transport of dolly 100.

[00029] With winch 2, an operator can extend secondary member 7 from main member 12 until the bottom edge of secondary member 7 is close to the top edge of main member 12. Pins (not shown) can be inserted into holes 44 on both long sides of main member 12 and through mating holes (not shown) on the long sides of secondary member 7 to prevent secondary member 7 from further movement with respect to main member 12 until the pins are removed.

[00030] Fig. 3 shows winches 1 and 2 and their respective cables 27 and 21. Wheels 11 and wheels 10 (see Fig. 4) are attached to secondary member 7 and engage the insides of the C-section beams that make up the long sides of main member 12, thus facilitating telescoping of secondary member 7 with respect to main member 12.

[00031] Fig. 4 shows one set of wheels 10 that, along with the set of wheels 11 (see Fig. 3), facilitates the telescoping movement of secondary member 7 within main member 12. Fig. 4 also shows a system of cables and pulleys 25 that controls the position of posts 5 in tube 41 (see Figs. 1 and 2) as discussed below.

[00032] Fig. 5 shows dolly 100 in its fully extended configuration with locking devices 33 locked to prevent folding of support members 34, and brake system 15 activated to prevent rotation of axle assembly and wheels 18. From Fig. 5 it can be seen that dolly 100 could be positioned in its extended configuration at various angles with reference to the floor or ground surface, depending on the position of support member 32. Because of its angled configuration, dolly 100 is capable of providing access to an attic equipped with a pull-down staircase if the bottom section of the staircase remained folded.

[00033] Fig. 6 shows dolly 100 in its fully extended configuration. While the operator extends secondary member 7 from main member 12, posts 5 are recessed into tube 41. When secondary member 7 enters an attic access, the operator toggles lever 42 that causes cable and pulley system 25 to release a detent (not shown) in tube 41. Release of the detent permits springs 26 to urge posts 5 outward from their positions recessed into tube 41. In their extended positions, posts 5, which in an alternative embodiment may be shaped like hooks, span two adjacent attic rafters and provide support for the top of extended dolly 100.

[00034] With posts 5 resting on attic rafters, locking devices 33 locked, and brake system 15 activated, dolly 100 is stable and secure. Then the operator may access the attic, and, with winch 1 and cable 27, hoist base member 31 and load 200 upward from the floor along the extended combination main and secondary members 12 and 7 until it is in position to be unloaded onto the attic floor.

[00035] After the load is removed from dolly 100, the operator, while still in the attic, may use winch 1 to lower base member 31 from the attic to the floor or ground surface. Then the operator may leave the attic, and, from the floor or ground surface, toggle lever 42 so that cable and pulley system 25 operates to retract and detent posts 5 into tube 41, thereby disconnecting the top of dolly 100 from the attic rafters upon which it had been supported during the hoisting operation.

[00036] The operator may then use winch 2 to lower secondary member 7 from its extended position in the attic to its non-extended position telescoped into main member

12. Locking devices 33 may be released, support members 34 folded, and support member 32 rotated into its storage position substantially adjacent and parallel to main member 12. Brake system 15 may be released, and dolly 100 moved to a storage location.

[00037] It will be apparent to those with ordinary skill in the relevant art having the benefit of this disclosure that the present invention provides an apparatus for moving objects and hoisting objects from a floor or surface into an attic above the floor or surface. It is understood that the forms of the invention shown and described in the detailed description and the drawings are to be taken merely as presently preferred examples and that the invention is limited only by the language of the claims. While the present invention has been described in terms of one preferred embodiment and a few variation thereof, it will be apparent to those skilled in the art that form and detail modifications may be made to those embodiments without departing from the spirit or scope of the invention.